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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/823,366	03/30/2001	D. Amnon Silverstein	10002452-1	7620

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EXAMINER

GENCO, BRIAN C

ART UNIT	PAPER NUMBER
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2615

DATE MAILED: 10/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/823,366

Applicant(s)

SILVERSTEIN, D. AMNON

Examiner

Brian C Genco

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) ____ is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 July 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 9/26/02.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the projecting of a single illumination source through a diffraction grating as claimed in claims 9 and 16 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35

U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over (US PG-PUB 2001/0041073 to Sorek et al.) in view of (US PG-PUB 2002/0071613 to Ford et al.).

Sorek discloses a method of reconstructing a digital image of an image on a surface using a digital image capture device arbitrarily positioned with respect to the surface, the method comprising the steps of:

projecting at least three illumination marks on the surface, said illumination marks having particular characteristic (e.g., Figs. 2-6; paragraph 0088);

capturing a single image of the surface to obtain captured image data (e.g., paragraph 0080);

detecting pixel values corresponding to the illumination marks and their corresponding location on the surface in the captured image data dependent on the particular characteristic (e.g., paragraphs 0088-0094 wherein it is inherent in the disclosure that the illumination marks and their corresponding location on the surface in the captured image data are detected);

using the location of the illumination marks in the captured image data to correct for distortion of the image and the surface in the captured image data to generate undistorted image data (e.g., paragraph 0094).

Sorek does not disclose nor preclude substituting estimated pixel values for the detected illumination mark pixel values in the undistorted image data, the estimated pixel values being determined using neighboring non-illumination mark pixel values.

Ford discloses generating a defect map for an image and providing a correction algorithm to substitute estimated pixel values for the detected defective pixel values, the estimated pixel values being determined using neighboring non-defective pixel values in order to correct defective regions resulting in an improved image that is more pleasing to a user (paragraphs 0016, 0020, 0033, 0034). Examiner notes that Sorek implicitly generates a defect map through the identification of projection marks wherein pixels comprising data for the projection marks are defective since they do not contain information about contents of the scene, merely the geography.

Therefore it would have been obvious to one of ordinary skill in the art to have utilized Ford's large defect correction method for correcting the projection marks of Sorek by utilizing the defect map implicitly created by Sorek to identify the marks and utilize that defect map to estimate pixel values determined using neighboring non-defective, or non-illumination, pixel values in order to correct the large defective regions resulting in an improved image that is more pleasing to a user.

In regards to claim 2 Sorek discloses the method of claim 1 wherein the particular characteristic is the intensity level (e.g., paragraphs 0102-0103).

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In regards to claim 3 Sorek discloses the method of claim 1 wherein the digital image capture device is a digital camera (e.g., paragraph 0080).

In regards to claim 4 Sorek discloses the method of claim 1 wherein the illumination marks are produced from an illumination source of a single color component having a particular intensity (e.g., paragraph 0104, lines 9-13).

In regards to claim 5 Sorek discloses the method of claim 4 wherein the single color illumination source is a laser (e.g., paragraph 0104, lines 9-13).

In regards to claim 6 Sorek discloses the method of claim 1 wherein the illumination marks are detected by detecting color component and intensity of the capture image data (e.g., paragraphs 0102-0104 wherein if intensity of the illumination marks is detected so as to reduce power consumption and further, if the beams are generated having a particular color then they are implicitly detected by detecting that particular color).

In regard to claim 7 Sorek discloses the method of claim 1 wherein the illumination marks are detected by detecting wavelength of the captured image data (e.g., see Examiners notes on claim 6 wherein detection of wavelength is detection of color).

In regards to claim 8 Sorek discloses the method of claim 1 wherein projecting the at least two illumination marks comprises projecting a grid of illumination marks (e.g., Figs. 4-6).

In regards to claim 9 Sorek discloses the method of claim 1 wherein the projecting the at least two illumination marks comprises projecting a single illumination source through a diffraction grating (e.g., Fig. 6; paragraph 0100).

In regards to claims 10-16 see Examiner's notes on the rejections above.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian C. Genco who can be reached by phone at 703-305-7881 or by fax at 703-746-8325. The examiner can normally be reached on Monday thru Friday 8:30am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Christensen can be reached on 703-308-9644. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the customer service office whose telephone number is 703-308-4357.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Brian C Genco
Examiner
Art Unit 2615

September 21, 2004



ANDREW CHRISTENSEN
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